PIKE TECHNOLOGIES
Spectroscopic Creativity

Installation and User Guide

Six Inch Vertical Wafer Transmission Accessory

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Introduction

The Vertical Wafer Accessory has been designed to mount a wafer in the beam of an FTIR spectrometer to allow manual or automatic mapping of the transmittance spectrum of the wafer. The accessory has two major parts, the drive mechanism and the ring.

The ring is placed into the drive mechanism and may be rotated through 360 degrees and translated through 3 inches to produce an R-Theta motion.

The tolerance of the diameter of the wafer that can be mounted conforms to SEMI standards. Orientation of the wafer with respect to the angle scale is left to the user's discretion. It may be useful to mark the clamp side of the ring with respect to the angular scale so that the wafer flat may have a repeatable position with respect to the scale.

The Vertical Wafer Accessory is mounted onto a standard sample compartment baseplate perpendicular to the beam. The entire baseplate and accessory can then be secured to the instruments sample compartment.

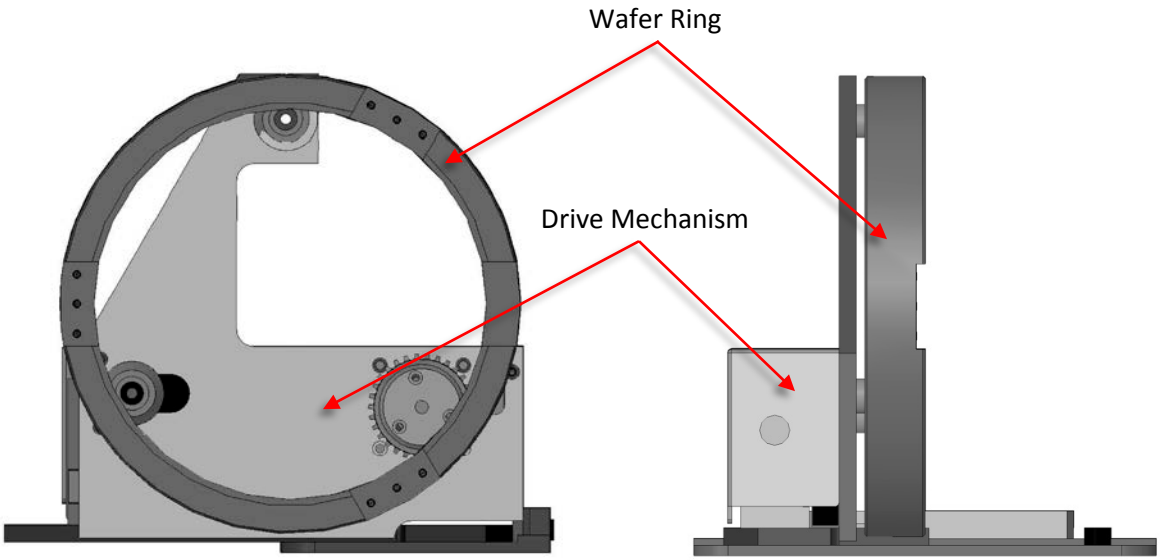


Figure 1. 6 Inch Vertical Wafer Accessory

Unpacking Your Accessory

In order for you to quickly verify receipt of your accessory, we have included a packing list. Please inspect the package carefully.

Packing List

Manual Wafer Holder

Vertical Wafer Accessory Manual
PN 350-073601
Quantity 1

Vertical Wafer Accessory
PN 073-16XX
Quantity 1

6 Inch Wafer Ring
PN 073-3600
Quantity 1

Automated Wafer Holder

Vertical Wafer Accessory Manual
PN 350-073601
Quantity 1

AutoPRO Manual and Software
PN 350-000070
Quantity 1

Motorized Vertical Wafer Accy
PN 073-26XX
Quantity 1

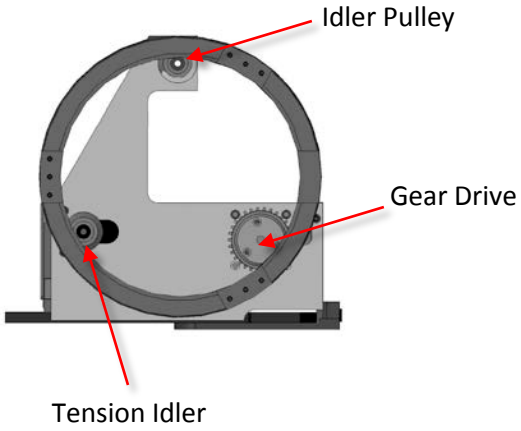
Motor Controller
Quantity 1

6 Inch Wafer Ring
PN 073-3600
Quantity 1

Power Cables
Quantity 1 set

Installation and Use

Removing the Holder from the Accessory



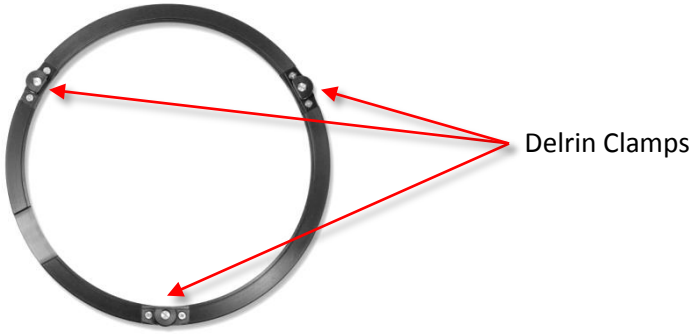
Perform the following steps:

1. Grasp the holder firmly between the top idler pulley and the tension idler.
2. Gently push in a horizontal plane toward the instrument.
3. When the ring has cleared the idler pulley and gear driver slightly twist the rear of the holder to the right.
4. Pull the holder back horizontally until the tension idler has recoiled and remove the ring.

Inserting a Wafer

Perform the following steps:

1. Remove the wafer holding ring from its mount and place it on a flat surface.
2. Rotate the three clamps so that the flats on the clamps are facing inwards.
3. Place a wafer in the ring. The wafer will rest on the three Delrin™ surfaces beneath the clamps.
4. Rotationally orient the flat on the wafer to the desired position with respect to the ring. It may be useful to place a mark on the ring to aid in this positioning.
5. Rotate the wafer clamps through 180 degrees to secure the wafer in place.

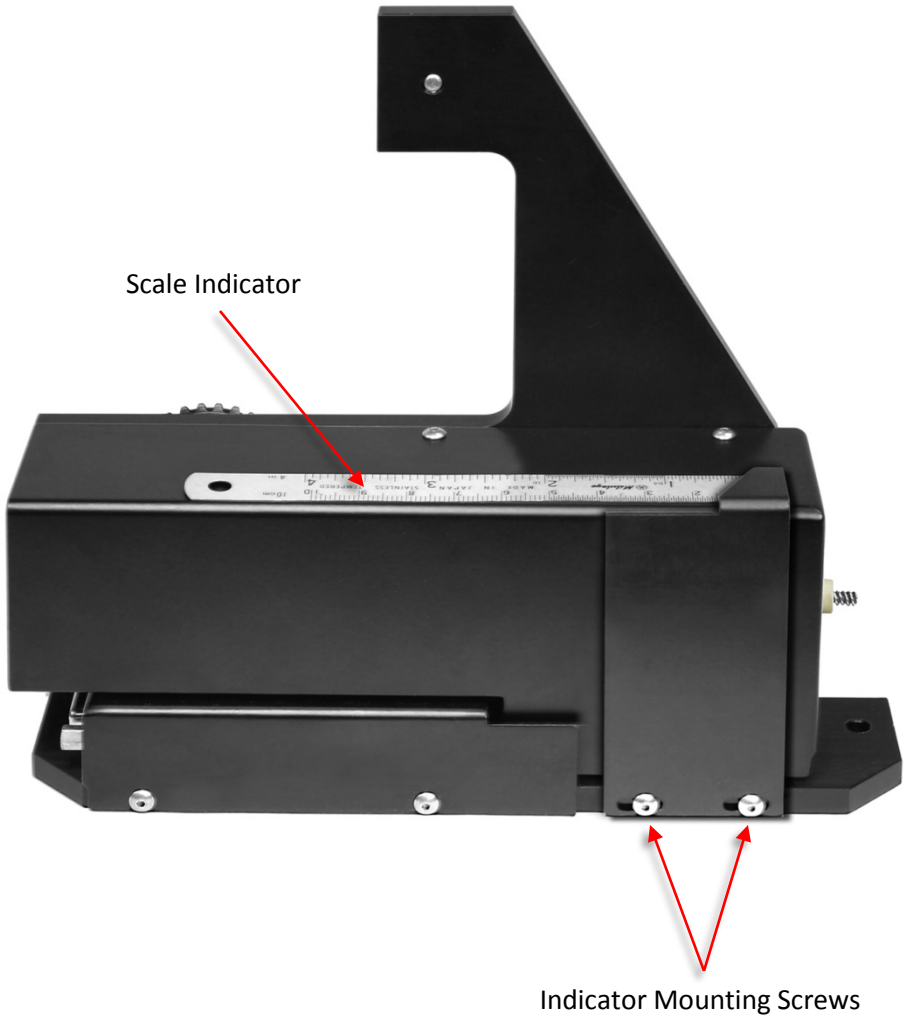


Initial Alignment

Linear Orientation to the Beam

The Vertical Wafer Accessory has been pre-aligned to the sample baseplate to assure the infrared beam strikes the center of the wafer and that the maximum travel is allowed in both the linear and rotational planes. The linear slide has two stops to limit the amount of travel of the slide.

The scale indicator showing the radius distance may be set to zero by loosening the two screws fastening the indicator. Align the scale indicator to the zero mark and secure the mounting screws.



Installing the Software

NOTE: Always install the software first before plugging in the motion control unit. If the controller is plugged in before the software has been installed the PIKE USB device driver may need to be updated. Please refer to Appendix B of the AutoPRO5 manual.

Step 1: Insert the CD into the drive of your computer.

Step 2: From the START menu, select **Run**. The **Run** dialog box will appear to enter a filename.

Enter either: **X:setup.exe** or "browse" to the Disk Directory and select **setup.exe**.

A setup dialog box will appear for a few moments while the installation program checks for available memory and configuration.

The AutoPRO Setup dialog box will appear:

Choose to use the default path select Enter
OR
Choose to enter an alternative path and then select Enter
OR
Choose to exit Setup by selecting EXIT

The software will be copied. The source and destination files and percentage of completed task are displayed.

A dialog box will appear when the program has been loaded. Click on the OK box to complete the installation.

Now the motion control unit can be plugged in. Windows Plug and Play will detect the new device being plugged in and prompt you to install a driver for it. Please refer to the AutoPRO5 manual for more details.

Installing the AutoPRO Motor Controller

The motion control electronics interface the Vertical Wafer Accessory to your computer. Commands are sent to this electronics unit using a USB cable. A 15-pin accessory cable is used to connect this unit to the accessory.

Connecting the Motor Controller to Your Computer

The power supply for the motor controller is self-adjusting and can be used in most locations. Please read the labels on the rear of the motor controller before attempting to connect the system.

The power for the motor controller should always be turned off when attaching the cables.

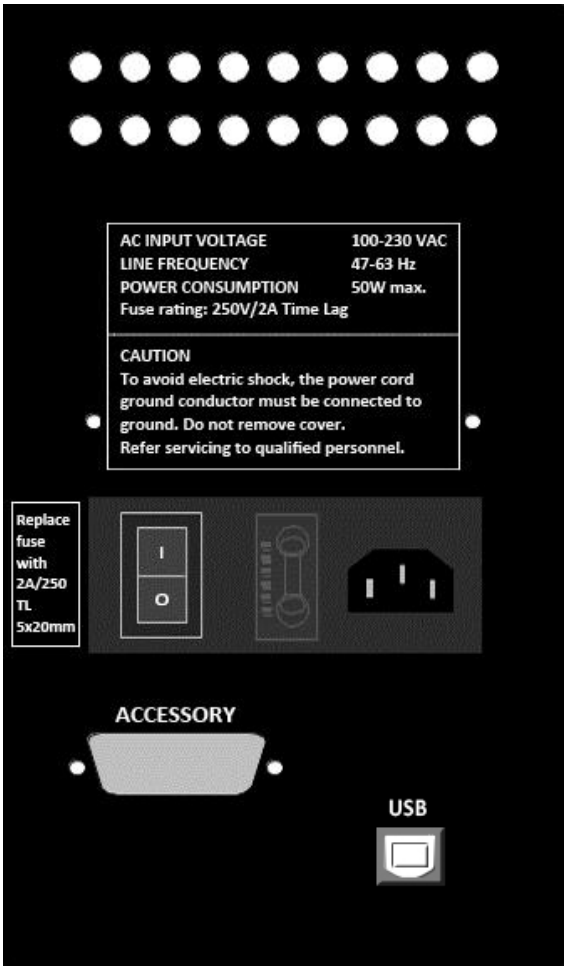

AC INPUT VOLTAGE 100-230 VAC
LINE FREQUENCY 47-63 Hz
POWER CONSUMPTION 50W max.
Fuse rating: 250V/2A Time Lag
CAUTION
To avoid electric shock, the power cord ground conductor must be connected to ground. Do not remove cover.
Refer servicing to qualified personnel.
Replace fuse with 2A/250 TL 5x20mm
I
O
ACCESSORY
USB

Figure 10. Motor controller rear panel

Correct Cabling Procedure

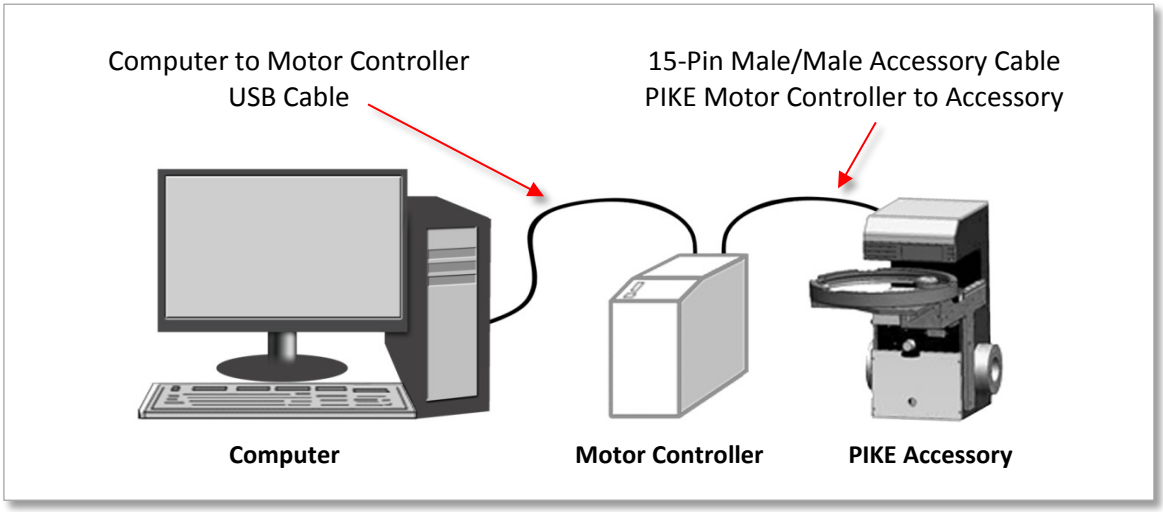


Figure 11. Correct cabling procedure

- The accessory port of the motor controller should be connected to the accessory through the 6 foot, male-to-male 15-pin cable provided.

- Connect the USB cable from the controller to the PC.

Starting AutoPRO

There are several ways in which to run AutoPRO control. Follow the steps below in order to start AutoPRO Control as a stand-alone application:

1. Click the start button

2. Point to Programs

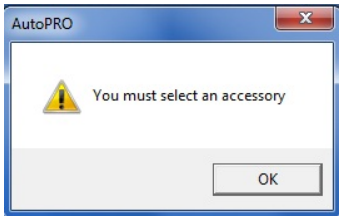
3. Point to the AutoPRO5 folder

4. Click on the AutoPRO program

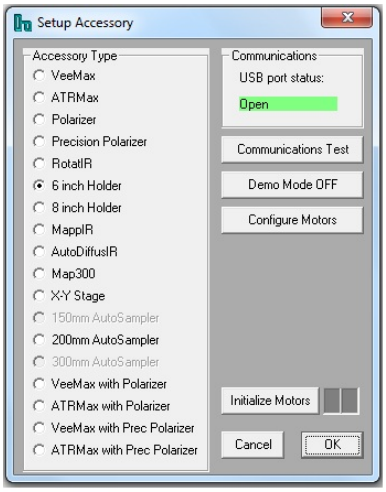
The program will be run, and will be displayed in the lower left hand corner of the display. Note that AutoPRO requires that your computer system be set up with a screen resolution of at least 800x600.

It's Your First Time

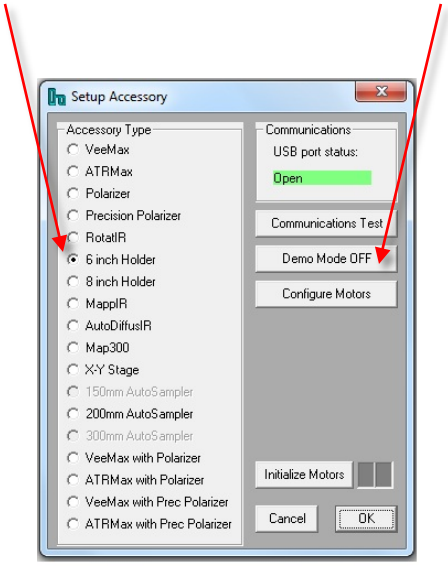
When you start AutoPRO for the first time, the software does not know which accessory you have and you will be asked to configure the software. The dialog below will be shown.



When you click OK, the Accessory Setup page will be displayed.



In order to configure the software to work with your accessory, click the button next to the accessory description. Click on 6" holder and ensure DEMO MODE is OFF. Click OK.

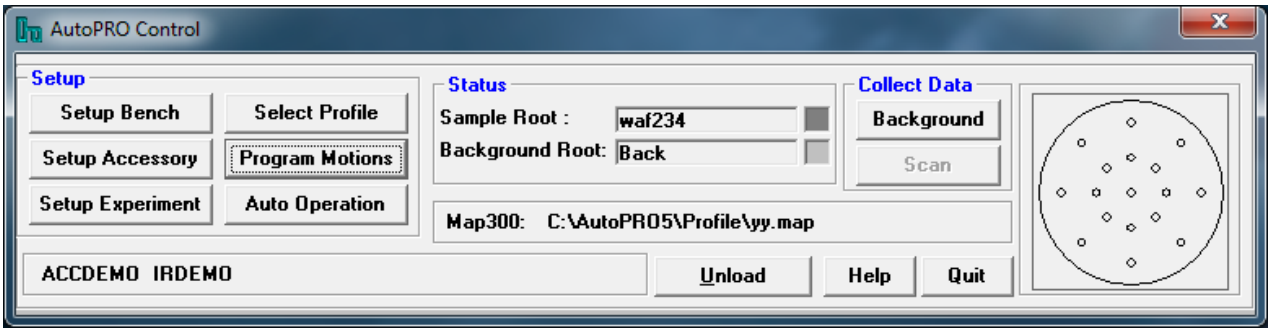


AutoPRO Overview

AutoPRO is a Windows based automation software program for use with PIKE automated accessories and the AutoPRO motion controller. With this software package a range of automated accessories may be programmed and operated in conjunction with most Windows based FTIR software packages. Several programs comprise the complete software package, but the following two programs are central to the function of the software and will be introduced briefly here.

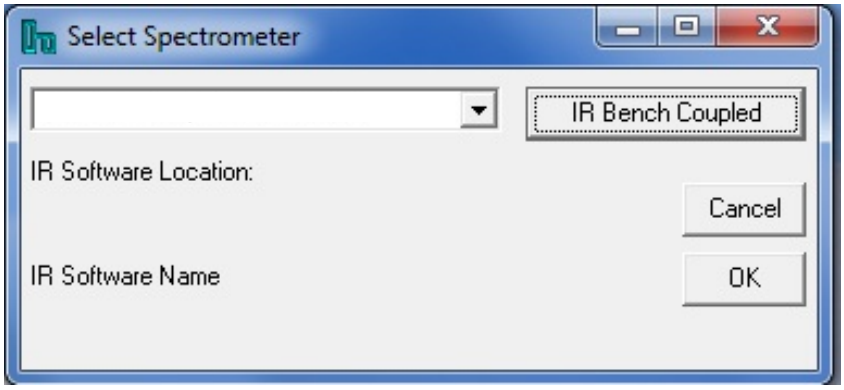
AutoPRO Control

This program contains the tools required to operate your automated accessory.

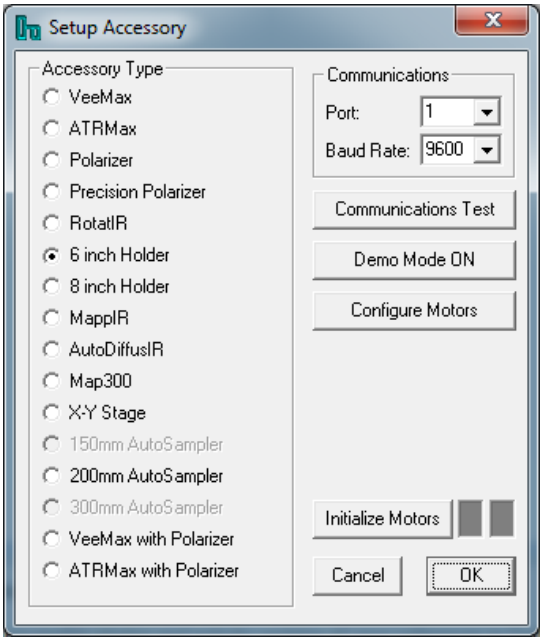


The AutoPRO control panel contains the following major functions:

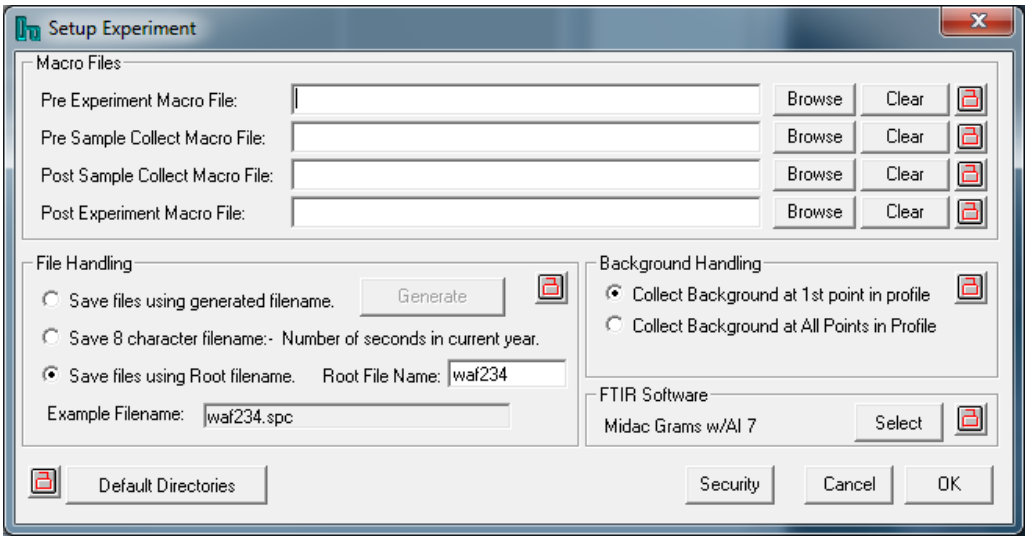
- **Setup Bench -** Basic parameters for data collection (number of scans, resolution, etc.) may be defined and stored to a file.



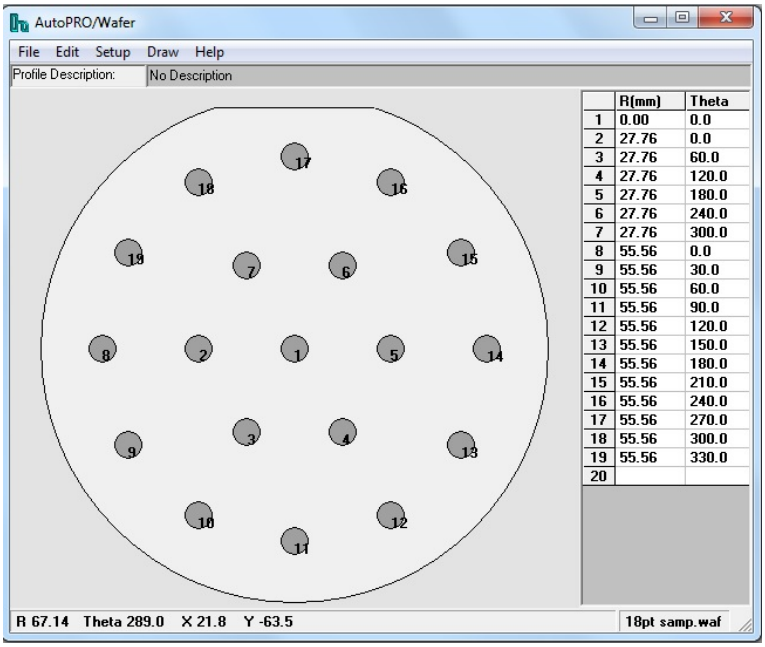
- **Setup Accessory -** This function allows selection of the actual accessory used with the spectrometer, computer/accessory communication test, and basic accessory setup. Select 6 inch Holder.



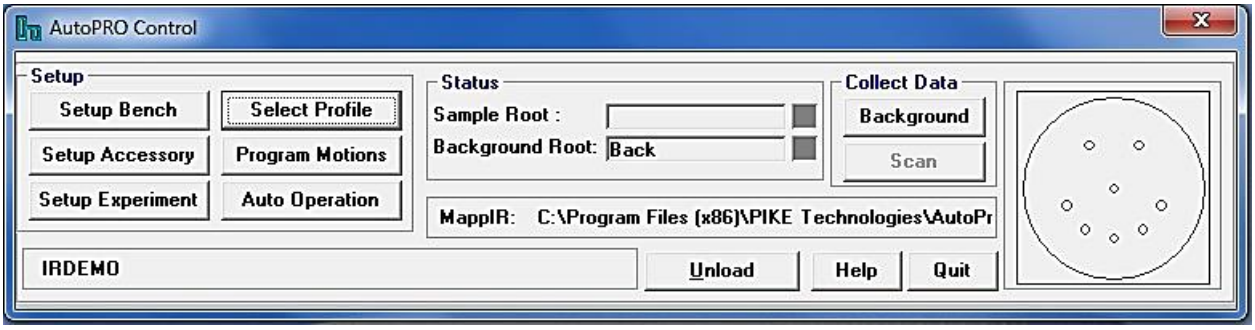
- **Setup Experiment -** Macros and executable files can be integrated into the autosampler routine. This function also allows special handling of multiple filenames and provides different security options.



- **Program Motions** - A series of samples may be defined and stored to a file. This file may be subsequently used to move your accessory while collecting data from your spectrometer.



- **Load and Unload** - The accessory stage may be moved to an unload position to simplify the insertion of new samples.



How to Use Help

Choose Help from the menu, or press F1 on the keyboard.

- **Index** - Displays an index of Help topics including menus, commands, and shortcuts.
- **Using Help** - Provides information on how to use Windows Help.
- **About** - Provides specific information regarding the version of AutoPRO and current system information.

Status

The status of the accessory at any time is displayed. This includes the position of the accessory, the current status of the motors and a thumbnail view of the file being used for programming the motion.

These and all other functions are described fully in the AutoPRO manual.

Init.exe, First.exe…

These are programs which may be inserted into an FTIR macro. With these programs the basic functions required to run the accessory may be accessed from within the macro. While the software is running a small AutoPRO status box is displayed in the lower right hand corner.

More details of how to use this and other .exe files available in the AutoPRO software are given in the AutoPRO User's Manual.

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